EPA Environmental Education Grant
Goodwin College Work Plan

(i.) Project Summary

1. Organizations and Partnerships

a. Goodwin College (Goodwin), as a private, not-for-profit 501(c) (3) higher education institution, is an eligible applicant. A New England Association of Schools and Colleges accredited college; Goodwin offers 19 associate, 11 bachelor, and 2 master's degree programs. Fall 2017 enrollment was 3,536 students. As an open enrollment institution, Goodwin draws most of its students from urban high schools within the Hartford region. Goodwin offers environmental studies and public health courses.

b. Project Management and Implementation:
Goodwin project management staff, led by Bruce Morton, Environmental Studies Program Director, will provide oversight of all activities. Project Manager Stephanie Baldwin will manage the daily operations of the grant. Michele Saulis, Environmental Theme Coach at the Connecticut River Academy (CTRA), will supervise CTRA's role in the project. Key Partners include:

- The Connecticut River Academy (CTRA), a sustainability-themed magnet high school.
- Connecticut River Conservancy (CRC), a nonprofit organization that protects and advocates for the Connecticut River watershed through education, resources, and conservation activities.
- New England Chapter of the American Public Works Association, a professional association for public works officials in New England.
- Riverfront Recapture, a nonprofit organization that connects people to the Connecticut River.
- Three Rivers Community College in Norwich, CT.
- Town of East Hartford, public works department.
- University of Connecticut NEMO (Nonpoint Education for Municipal Officials), which provides education to municipal officials on nonpoint sources of water pollution.

2. History of Receiving EE Grants

Goodwin has not received any EPA EE grants.

3. Goals and Objectives

a. Statement of Goals and Objectives

Goal 1: Strengthen Goodwin's and CTRA's capacity to teach and to foster environmental and conservation stewardship in high school and college students to reduce sources of water pollution and improve Connecticut River water. This goal addresses EPA's Educational Priorities #1 and #2.

Goal 1. Objective 1.1: Provide professional development on nonpoint sources of water pollution and measures water quality officials and citizens can take to prevent debris from flowing into the water, conducted by Goodwin faculty to increase CTRA teachers' capacity to teach this subject matter.

Goal 1. Objective 1.2: Update Goodwin and CTRA environmental studies and public health curricula to introduce new nonpoint sources of water pollution (NPSP) unitsto increase teachers' resources to teach actions and solutions.

Goal 2: Increase high school and college students' ability to analyze causes and mitigate environmental problems through classroom instruction, field trips and participation in river clean-up efforts. This goal addresses the EPA's Environmental Priority #2. It also addresses Objective 1.2 (Provide for Clean and Safe Water) of the 2018-2022 EPA Strategic Plan.

Goal 2. Objective 2.1: Educate college and high school students about nonpoint sources of water pollution in the Connecticut River and environmental stewardship through curriculum units in Goodwin's Introduction to Environmental Science, Principles in Floodplain Ecology, Environmental Contaminants

and Sanitation, and Human Health in the Environment (also available to Goodwin's public health students) as well as CTRA's environmental sciences curriculum. These units would be taught beginning in the fall 2019 semester.
Goal 2. Objective 2.2: Prepare Goodwin students to deliver a presentation to peers, faculty, and staff on ways citizens can reduce waste going into the Connecticut River, to take place during Goodwin's Annual Health and Wellness Week.
Goal 2. Objective 2.3: Conduct place-based educational field trips on the Connecticut River to identify floatable debris and demonstrate techniques of capture and removal to encourage environmental stewardship in students.
Goal 2. Objective 2.4: Conduct Connecticut River cleanup activities modeled after the Source to Sea program and coordinated by the Connecticut River Conservancy, in which Goodwin College, CTRA students, and partners will participate.
Goal 2. Objective 2.5: Use the recorded trash collected data to inform the Connecticut River Conservancy's Trash Tally program and public presentations.

Goal 3: Foster collaboration and public participation among municipalities and river conservation groups to conduct activities to reduce joint nonpoint sources of water pollution, which will contribute to Connecticut River's health efforts. This goal addresses the EPA's Environmental Priorities #2 and #4. It also addresses Objective 2.2 (Increase Transparency and Public Participation) of the 2018-2022 EPA Strategic Plan.
Goal 3. Objective 3.1. Work with partners to organize two town hall meetings of community leaders, municipal planning and water quality officials, conservation groups, students, and local land trust members to provide information to increase knowledge and awareness about nonpoint sources of pollution and mobilize them to take part in activities to improve the Connecticut River water quality.
Goal 3. Objective 3.2. Produce and present a webinar for municipal water quality officials to increase awareness and action to mitigate the impacts of combined sewer overflows and floatable debris on Connecticut River water quality, as well as a workshop for public works officials.
Goal 3. Objective 3.3. Replicate this project in another Connecticut watershed area, share the management plan for this project, and provide seed funding.

b. This locally-focused environmental education project meets the RFP Section 1.B goals through the curriculum units development and delivery that will promote environmental and conservation literacy and stewardship of Connecticut River water quality. Activities include classroom instruction, placed-based education and hands-on activities to remove floating debris from the river floodplain. Student-led presentations to the college community will instill stewardship in participants who will consider ways to continue to improve water quality.

a. **Priorities**

EPA Educational Priorities Addressed by this Project:

1. Agricultural Education: This project supports this priority by educating students (in formal and non-formal settings) and community leaders about water quality issues affecting the Connecticut River through non-point sources of water pollution-focused curriculum (highlighting floatable debris pollution) at Goodwin and CTRA and community meetings. The use of three booms to collect debris from the floodplain during periods of flooding is an effective practice, and the participation of students in cleaning up floating debris will enhance the classroom instruction and develop stewardship.
2. Community Projects: This project supports this priority by increasing public understanding of the need to keep floatables out of the river, and offers opportunities for community collaboration on water quality issues in an urban area through town hall meetings and community river cleanups.

b. EPA Environmental Priorities Addressed by This Project:

Priority 2. Ensuring clean and safe water by supporting clean drinking water, aquatic ecosystems, and recreational, economic, and subsistence activities. The education and mobilization of students and community members to reduce the nonpoint sources of pollution and their participation in river cleanup efforts through a community cleanup project focusing on removing floatable debris supports this priority. Priority 4. Increasing transparency, public participation, and collaboration with communities. The project fosters and increases stakeholders' collaboration stewardship to improve Connecticut River water quality through formal and informal education for students. It also provides information and awareness of floatable debris capture and mitigation directed toward community leaders, including municipal officials, river conservation groups, and citizens, and scheduled river cleanup activities.

5. Local Relevance

Most project activities, including community clean-up days, will take place along the Connecticut River banks in East Hartford, an urban municipality of 51,000 residents. Town hall meetings will take place in Hartford. The Connecticut River is popular location for recreational activity in the region. East Hartford and Hartford have riverfront parks used by an estimated 600,000 annually. Students at Goodwin and CTRA use the river for educational field trips and class assignments, such as measuring water quality. Three Rivers replication project will take place within the Thames River floodplains in Norwich. Three Rivers uses its nearby rivers and floodplains to conduct classroom experiences. Nearby communities access the Thames River for recreational use.

6. Implementation/Delivery Method

a. Faculty and teachers educate targeted audiences through curriculum development and classroom instruction, field trips, and a student-led presentation to the college community. Curriculum developers will use the principles outlined in *Environmental Education Materials: Guidelines for Excellence*, published by the North American Association for Environmental Education (2004) in designing curriculum. Content will focus on techniques of capture, maintenance and impact of floatable debris on Connecticut River water quality, and what citizens can do to reduce waste flowing into the river. Goodwin faculty and Connecticut River Conservancy (CRC) staff will provide community leaders, citizens, and stakeholder groups with information and to enhance awareness and skills needed to take responsible action through two town hall meetings hosted by Riverfront Recapture. NEMO's webinar for river conservation and municipal water quality officials will promote awareness and action on the issue of capture and removal of floatable debris from the floodplain. APWA's New England Chapter, a regional public works association, will host a workshop on nonpoint sources of water pollution issues for public works officials. Goodwin Environmental Studies Director Bruce Morton will explain the project's use of booms to capture debris, to spur public works attention and inspire similar types of activities in their communities.

b. Sub-grantees will assist in advancing the project's goals and objectives by organizing and leading community meetings and river cleanup activities and by developing and/or providing educational resources to community stakeholders to spur planning and action. Specific roles include:
Connecticut River Conservancy (CRC). The CRC will assist with coordinating a river cleanup in the floodplain using the Source to Sea model, make presentations to stakeholder groups, assist with curriculum development, education and outreach to promote participation in educational meetings and river cleanup activities.
Riverfront Recapture: Riverfront Recapture will host two town hall meetings to provide information and skills needed to community leaders, including municipal water quality and environmental planners and river conservation and recreation groups, about the nonpoint pollution, especially the capture of floatable debris, suggest activities, and encourage action.

Three Rivers Community College in Norwich, CT, will replicate this project by educating and developing stewardship in students to engage in cleanup activities in another watershed.
The Town of East Hartford: Town public works crews will remove debris in the South Meadows floodplain collected during flooding periods and sorted by river cleanup participants.
UConn NEMO (Nonpoint Education for Municipal Officials): UConn NEMO will produce a stormwater discharge impact on water quality webinar for water quality officials and volunteer inland wetlands and environmental planning board members. Grant staff will work with UConn NEMO to produce a one-page fact sheet on floatable debris, identified as a resource currently lacking for the public.

7. Audience

a. Goodwin student profile is 51% minority, including 25% Hispanic, meeting the federal threshold as a Hispanic Serving Institution. A total of 92% of its students receive some form of financial aid. CTRA student profile is 76% minority, and 65% are eligible for free- or reduced lunch. A total of 75 students, 50 students in Goodwin's environmental studies and public health courses and 25 students in CTRA's environmental studies courses, will be educated about nonpoint sources of water pollution and ways to reduce pollution. East Hartford's minority population is more than 50% of its total population, including a 31% Hispanic population. East Hartford is designated as a distressed municipality by the State of Connecticut, based on a formula that uses demographic and economic distress criteria. A total of 100 community leaders, including municipal water quality officials and environmental planners, and conservation group members, will also attend educational sessions and a planned webinar. Project staff anticipates 50-100 community members will attend at least one event (town hall meetings, river cleanup, and/or a presentation at Goodwin).

b. Project staff will promote the educational activities in river cleanup days to the broader community through the college's marketing and communications channels. Partner organizations will also promote these activities to their constituencies and the community.

8. Costs

Category	EPA Funds	Non-EPA Funds	Total
Personnel/Salaries			
Project Director		$11,531.06	$11,531.06
Project Manager	$36,250.01		$36.250.01
CTRA Project Manager	$6,000.00		$6,000.00
Project Replication Manager-faculty release time	$4,000.00	$3,422.00	$7,422.00
Fringe Benefits			
Project Director		$2,998.08	$2,998.08
Project Manager			
CTRA Project Manager	$1,560.00		$1,560.00
CTRA Project Manager			
Facilities staff time to install/remove boom		$8,640.00	$8,640.00
Travel			
Travel to and from conferences, town hall meetings, field trips, partner sites, etc.	$1,500.00		$1,500.00
Supplies			
Dumpster rental (4)		$2,400.00	$2,400.00

Hip waders 5 pair @ $60 each=$300; work gloves-150 pair @ $30 each=$3,000 plus shipping	$3,374.00		$3,374.00
Paper, printing, duplication, fliers	$1,625.00		$1,625
Booms (3)	2,750.00		$2,750.00
Contractual			
Evaluator	$5,000.00		$5,000.00
Other/Sub-grantees			
Riverfront Recapture	$5,000.00		$5,000.00
Connecticut River Conservancy	$5,000.00		$5,000.00
Three Rivers Community College	$5,000.00		$5,000.00
Town of East Hartford	$5,000.00		$5,000.00
UConn NEMO	$5,000.00		$5.000.00
Field Trips	$3,960.00		$3,960.00
F&B for river cleanup days	$4,200.00		$4,200.00
Course release time		$4,000.00	$4,000.00
Indirect Costs			
10% of Salaries and benefits	$4,781	$342.20	$5,123.00
TOTAL	$100,000	$33,333.34-25%	$133,333.34

(ii) Detailed Project Description – Community Projects, Agricultural Education

1. What. Goodwin will lead initiatives and implement activities designed to increase environmental literacy and knowledge and catalyze environmental and conservation stewardship in the Metro Hartford area to improve Connecticut River water quality.

a. This project supports Goal 1. Objective 1.2-Provide for Clean and Safe Water, as well as Goal 2, Objective 2.2-Increase Transparency and Public Participation, in the 2018-2022 EPA Strategic Plan. This project addresses the EPA's Educational Priority #1 by educating citizens about water quality issues. It also addresses the EPA's Educational Priority #2 by increasing public understanding of the benefits of and participation in environmental and conservation stewardship through community collaboration on water quality issues.
b This project also addresses Environmental Priority #2 by ensuring clean and safe water by supporting clean drinking water, aquatic ecosystems, and recreational, economic and subsistence activities and Environmental Priority #4 through increasing public participation and working collaboratively to participate in the conservation of water resources.
Activity 1) Environmental/Public Health Curriculum Revisions: Goodwin project staff will coordinate revisions to its college and high school (CTRA) environmental studies and public health curriculum to educate its students about Connecticut River pollution sources (with floating debris being a major cause) and actions citizens can take to improve water quality. Field trips will supplement classroom instruction. Students will also participate in a community-wide river cleanup activity using the Connecticut River Conservancy's Source to Sea model.
Activity 2) Community Stakeholder Awareness: Stakeholder groups include community leaders, municipal water quality and environmental planning officials, recreational trails groups, and river conservation organizations. Town hall meetings will be used to provide information and awareness to these groups about the impact of floatable debris and the impact on Connecticut River water quality and suggested actions to reduce waste flowing into the river.
Activity 3) Field trips: Goodwin will coordinate two field trips for high school and college students. The first one will take place in the Goodwin floodplain property. Students will see first-hand how a debris boom is installed in a culvert area before seasonal flooding and will learn about the nature of floatable

debris and where they come from. A second field trip will take students to the Hole in the Wall property in East Lyme, CT, where they will see floatables flow into a stormwater treatment system.

Activity 4) Community River Clean-up Activities: Goodwin will purchase and install booms during seasonal flooding on Goodwin property to collect the debris; permits will be secured, if necessary. After the floodwaters subside, Goodwin will organize three community cleanup-days to collect and sort debris for recycling stations. One hundred fifty participants from the community, including students, conservation, and trails groups will volunteer across the three clean-up events.

2. Why

a. The Connecticut River is a major wildlife habitat and a leading source for recreation in the Hartford region. The Connecticut River, its four riverfront parks, and trails contribute to community health and vitality. Efforts to reduce pollution include the MDC's $2.4 billion capital improvement project to upgrade the region's sanitary sewer system and minimize the impact of combined sewer overflows on citizens, businesses, and communities who enjoy the river. Goodwin is well-positioned and ideally equipped to implement a project to improve water quality given its location along the Connecticut River, its environmental studies program, and an environmentally-themed magnet high school on its campus. Goodwin will leverage relationships with environmental and conservation groups who have the expertise to carry out this project and meet the goals and objectives.

b. Goodwin's environmental studies courses and its commitment to environmental sustainability as manifested by its investment in a trails network along the river, as well as its relationships with river conservation groups, are the reasons it selected the EPA's educational and environmental priorities. Goodwin can achieve the goal of educating students in formal and non-formal settings in an urban community about water quality issues (Educational Priority #1). Its existing relationships with river conservation groups facilitates Goodwin's capacity to increase public understanding of the benefits of environmental stewardship on water quality issues (Educational Priority #2) through formal and non-formal as well as place-based educational contexts, utilizing field trips and cleanup activities. Also, Goodwin's location along the Connecticut River and its efforts to promote conservation and protect the riverfront are reasons why it chose the EPA's Environmental Priority to ensure clean and safe water through collaborative work that is proposed to remove floatable debris and improve water quality (Environmental Priority #2). Goodwin's role as an educator and an environmental steward are reasons why it chose activities that increase public participation and collaboration with communities (Environmental Priority #4).

c. Environmental protection officials for years have written reports documenting the need to improve Connecticut River water quality. "The Connecticut River… is still beset by problems that prevent it from achieving federal Class B fishable/swimmable water quality standards in many locations, particularly below both the Holyoke Dam in Massachusetts and aging infrastructure in the Hartford, Connecticut region. Aged infrastructure that can only be remediated incrementally due to monumental costs continues to deliver pollutants that result in downstream impacts. This includes some 28.7 million pounds of nitrogen (MA DEP, 2011) flowing annually from the Connecticut River into the marine ecosystem of Long Island Sound. Though some of the largest combined sewer overflows (CSOs) have been eliminated and associated contamination reduced by half in the past 15 years, bacteria levels during storm events remain unsafe for swimming and boating. Combined sewers are located in the region's poorest communities which have already seen repeated rate hikes to help cover some of these cleanup costs." (Retrieved from http://connecticutriver.us/site/content/about-river).
According to the EPA, "Floatable debris causes problems in coastal watersheds because it can easily come into contact with aquatic animals, people, boats, fishing nets, and other objects. Thousands of aquatic animals are caught in and strangled by floatable debris each year. Coastal

communities also lose money when littered beaches must be closed or cleaned up, and the fishing industry and recreational and commercial boaters must spend thousands of dollars every year to repair vessels damaged by floatable debris." (Assessing and Monitoring Floatable Debris, U.S. Environmental Protection Agency (2002).

3. How

Curriculum development and implementation, combined with two field trips, a student-led presentation on ways to reduce waste going into the river and hands-on activities to collect debris in the floodplain will educate students and develop environmental and conservation stewardship.

a. We will achieve our educational goals by:

- Educating students about nonpoint sources of water pollution and what they can do to reduce waste going into the river through embedded content in Goodwin and CTRA environmental studies and public health courses.
- Hosting two field trips for Goodwin and CTRA students—one to the floodplain area to see how a debris boom is installed and learn about types of floatables and where they come from and a second trip to an East Lyme property where floatables go into a stormwater treatment facility.
- Scheduling three community clean-up days, utilizing the Connecticut River Conservancy's Source to Sea model, which will demonstrate how individuals can participate in improving water quality to benefit the community.

b. We will achieve our environmental goals by:

- Organizing two educational town hall meetings and a webinar for key stakeholders (municipal officials, inland wetlands boards, conservation groups, citizens).
- Coordinating a student-led presentation to the college community, guided by the Connecticut River Conservancy, during Health and Wellness Week, held each April. The presentation will educate the college community on sources of water pollution and what they can do as citizens to reduce waste going into the river.
- Installing a boom before flooding season to collect floatable debris and prevent it from floating downstream to Long Island Sound.
- Organizing three community cleanup days to collect and separate debris for removal.

c. Sub-grantees will assist Goodwin in meeting the Educational and Environmental Priorities of this project in the following ways: A leading river conservation organization with ties to municipalities along the river will host two town hall meetings on nonpoint sources of pollution and ways to reduce waste going into the river for stakeholder groups, including municipal water quality and planning officials, conservation, community members, and trails groups. A regional association will host a conference for public works officials. The Town of East Hartford will assist in hauling away debris collected from the floodplain to prevent it from getting back into the river. Finally, a university-based research organization will produce a webinar for municipal officials on combined sewer overflows and the impact on water quality. These groups were selected due to their expertise, their mission, and work, which align with the grant activities. Three Rivers Community College in Norwich, CT, will replicate the place-based education and debris boom and cleanup components of this project in another watershed.

4. Who

a. Audiences: Goodwin and CTRA environmental studies students (75), Three Rivers Community College (20), municipal officials (100), conservation groups (100) and community members (100). The project will measure students' environmental literacy through survey instruments before the new curriculum being implemented. Municipal water quality and environmental planning officials increase their awareness of the impact of floatable debris on Connecticut River water quality and ways to contribute to cleanup.

b. Recruitment Plan: Since there is an existing pool of students at Goodwin and CTRA, the college and the high school's communications channels will reach and recruit students for the

environmental studies courses. Goodwin's conservation partners, Riverfront Recapture, CRC and the New England Chapter of the American Public Works Association, will market educational programs to their constituencies. Goodwin will supplement these efforts through its existing marketing and communications channels, which include a weekly e-newsletter disseminated to faculty, staff and students, website and social media channels.

iii. Project Evaluation

1. Project staff will track goals and objectives progress and review evaluation data at monthly at meetings. The grant staff will organize meetings with key faculty who will develop and teach the revised curriculum to monitor progress on meeting the goals and objectives. For each sub-grantee, we will prepare a Memorandum of Understanding that will include detailed tasks and timeline and track progress through monthly meetings or conference calls.
2. ***External evaluation***. Goodwin will collaborate with a qualified independent evaluator to develop a plan to evaluate the extent to which the project meets its goal to develop student and faculty critical thinking skills about nonpoint sources of Connecticut River water pollution, and in particular, their: a) self-efficacy for learning and investigating water quality; and b) self-efficacy for environmental action (including intention to serve as good stewards of the environment, and intention to participate in future activities to improve water quality). The external evaluation will use survey methods identified in Table 1 (below) to evaluate pre/post change in critical thinking/self-efficacy for students and faculty/staff and to investigate changes in collaboration and intent to reduce pollution among the participating municipalities and river conservations groups.

Table 1. Evaluation Questions and Methods

Goals	Evaluation Questions	Data Collection
Goals 1 & 2	• To what extent do ***students*** and ***faculty/staff*** indicate increased a) self-efficacy for learning and investigating water quality, and b) self-efficacy for environmental action?	• Pre-post survey
Goal 3	• To what extent do stakeholders representing ***municipalities and river conservation groups*** indicate increased collaboration and intention to reduce joint nonpoint sources of water pollution?	• Pre-post survey

Survey administration. Project staff will seek an independent evaluator who will use best practices and standards of universal design to compose and/or integrate reliable, valid, and meaningful instruments and tools. In addition, the project staff will identify an evaluator who uses online surveys to collect perception, fidelity, and outcome data from students and faculty/staff. Drawing from best practice in survey administration, the evaluator will use a personalized introduction/invitation letter to alert target participants of an upcoming survey, explain the benefits of survey participation, share how the survey results will be used, implement a variety of strategies to increase completion rates, regularly track survey responses, and examine data by variable on an ongoing basis to identify out-of-range data, unexpected values, or problems with survey administration.

3. Project staff will implement procedures and controls to ensure grant funds, including sub-grants, are spent in a timely and efficient manner. These procedures and controls include monthly reporting, periodic written reports to the project director from partners and sub-grantees, monthly monitoring and reconciling of all expenses, and periodic project meetings. These measures will ensure that key milestones are met. We will report evaluation results to the EPA as required.